

SEVEN NEW SPECIES OF THE GENUS *OCTONOBA* (ARANEAE: ULOBORIDAE) FROM THE RYUKYUS, JAPAN

By

Hajime YOSHIDA

Entomological Laboratory, College of Agriculture,
University of Osaka Prefecture, Sakai*

Synopsis

YOSHIDA, Hajime (Entomol. Lab., Col. Agr., Univ. Osaka Pref., Sakai) : Seven new species of the genus *Octonoba* (Araneae: Uloboridae) from the Ryukyus, Japan. *Acta arachnol.*, **30**: 21-32 (1981).

Seven new species of the genus *Octonoba* are described from the Ryukyus. These species inhabit only a few islands in the limited extent, and their distributions are not overlapping one another.

In my previous paper (YOSHIDA, 1980), five Japanese species of the genus *Uloborus* were transferred to the genus *Octonoba*. SHIMOJANA, ORI and others recorded two Japanese species, *O. varians* and *O. sybotides*, from many islands of the Ryukyus, but I cannot recognize their identifications. Because all examined specimens of the genus *Octonoba* collected in the Ryukyus are not *O. varians* or *O. sybotides* but different species.

In this paper, I wish to describe seven new species from the Ryukyus, which resemble one another morphologically and ecologically. OPELL (1979) reported one species of the genus *Octonoba* from Okinawa Island, which is one of my new species.

Before going further, I wish to express my hearty thanks to Prof. S. ITO and Dr. S. MORIUTI for their direction. My thanks are also due to Prof. T. YAGINUMA for his kind advice and loan of material.

* Present address: Higashi Junior High School, 760 Mukaimachi, Mogami-Machi, Yamagata Prefecture

Diagnosis of the Genus *Octonoba*

MALE: Carapace dark brown, with yellowish median stripe and a pair of light, marginal, longitudinal stripes, covered with fine, light grayish reclining hairs. Eyes outlined with black. Abdomen grayish brown to brown, with dusky blotches and white pigments, clothed with prone hairs. Chelicerae dusky. Labium and maxillae dusky basally and pale apically. Sternum and legs dusky. Palpal organ: median apophysis with spur concave or rolled inwardly; embolus originating from before apex and narrowed to thin spine largely encircling. Carapace oval, evenly convex. Abdomen ovate in dorsal view and in profile.

FEMALE: Allied to male, but differs follows: Larger and darker than male.

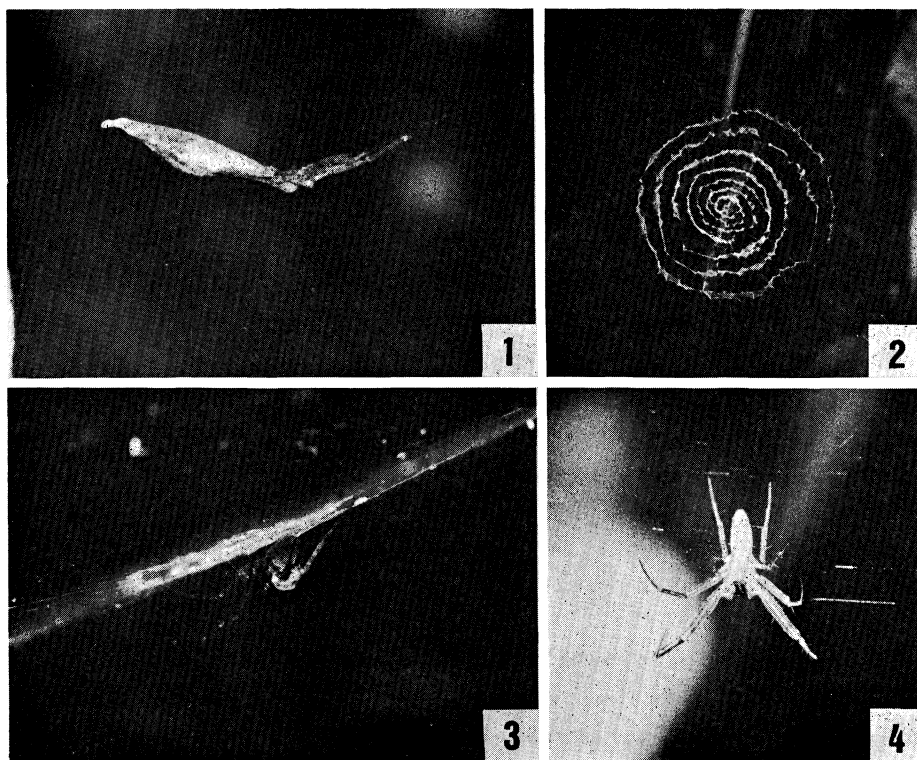


Fig. 1. *Octonoba yaginumai* n. sp., female and egg-cocoon.

Fig. 2. *O. uncinota* n. sp., web.

Fig. 3. *O. yaginumai* n. sp., female and its web.

Fig. 4. *O. yaeyamensis* n. sp., male.

Coloration and markings variable, with base yellow, gray, brown or black. Carapace broadly oval, evenly convex. Abdomen ovate in dorsal aspect, subtriangular in profile, highly arched in basal third. Epigynum with a pair of projections or an anteromedian lobe.

ECOLOGY: Complete orb-webs are made in the horizontal position, and are often embellished with distinctive silken ribbons. Female make polygonal or slender egg-cocoons, which are typical for the species.

Remarks

Seven new species are closely alike one another in general appearances and ecology, but are distinguished by male palpus. Discriminating characters based on male palpus are given in the key. In female, distinction of *grandiconcava*, *uncinata* and *okinawensis* is easy by epigynum, but that of the other four species is difficult.

As to names of the part of male palpus, I chiefly follow OPELL (1979). But median apophysis bulb (MAB) has various projections in *Octonoba*. These projections are temporarily named in this paper: Sa (spur a) forms concave or rolled inwardly lobe, which is OPELL's median apophysis spur (MAS); Sb is dark and small projection situated center of MAB, which is similar to MAS of *Uloborus* or *Zosis*; Sc is large projection continuing from MAB.

New species are divided into three groups:

- 1). Group I. (*grandiconcava* and *uncinata*)

MAB with various projections. Sa with tip curved towards inside. Two Japanese species, *yessoensis* and *sybotides*, belong to this group.

- 2). Group II. (*okinawensis*)

MAB reduced. Sa forms a U-shaped lobe.

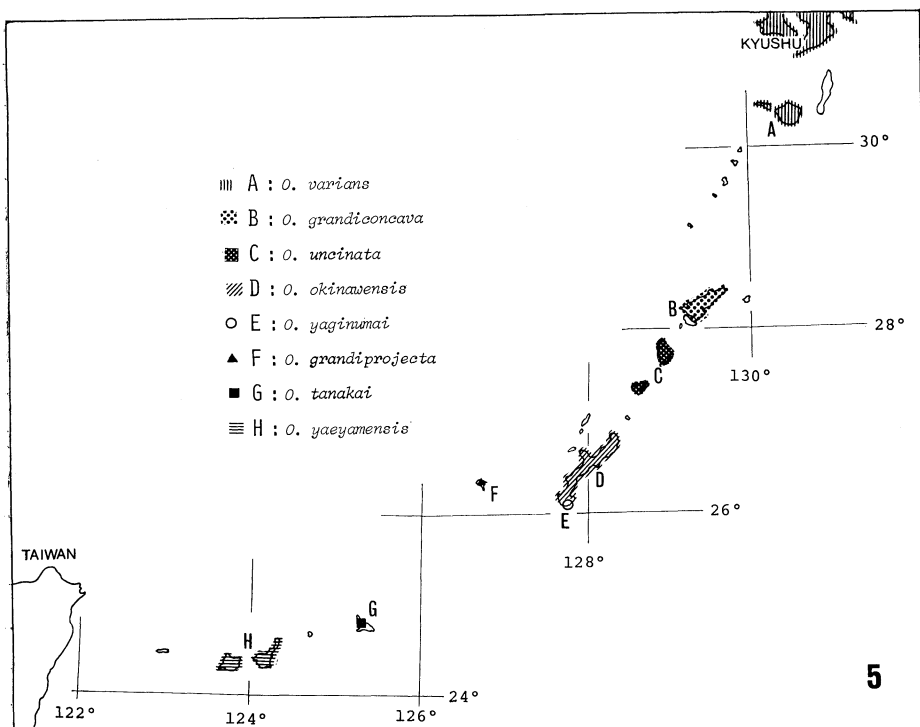
- 3). Group III. (*yaginumai*, *grandiprojecta*, *tanakai* and *yaeyamensis*)

MAB broad. Sa with tip straight. Sb present. Sc present in three species.

These new species may have been divided from a common ancestral stock, having been differentiated due to the isolation by the island.

For the description, five standard abbreviations (AME, ALE, PME, PLE and MOA) refer respectively to the anterior median, anterior lateral, posterior median and posterior lateral eye, and to the median ocular area.

Holotypes and some paratypes of new species described in this paper are preserved in the collection of the Arachnological Society of East Asia, Otemon

Fig. 5. Distribution of *Octonoba* spp. in the Ryukyus.

Gakuin University, Ibaraki, Osaka.

**Key to Species of *Octonoba* in the Ryukyus
based on Male Palpus**

1. Sa with tip curved inside 2
- Sa with tip straight 3
2. Sa large *grandiconcava* n. sp.
- Sa small *uncinata* n. sp.
3. Sc present 4
- Sc absent 6
4. Sc tapering to apex *grandiprojecta* n. sp.
- Sc broad and round 5
5. Sc large *yaeyamensis* n. sp.
- Sc small *tanakai* n. sp.
6. Sa distinct from MAB which is reduced *okinawensis* n. sp.
- Sa attached to MAB which is broad *yaginumai* n. sp.

***Octonoba grandiconcava* n. sp.**

(Figs. 5-8)

MALE (Holotype): Total length 3.21 mm. Carapace length 1.26 mm; width 1.13 mm. Eye sizes and interdistances (mm): AME 0.09; ALE 0.07; PME 0.09; PLE 0.08; AME-AME 0.08; PME-PME 0.16. MOA length 0.24 mm. First femur 2.16 mm; patella and tibia 2.50 mm; metatarsus 2.21 mm; tarsus 0.84 mm. Second femur 0.80 mm; fourth 1.17 mm. Legs dusky; in third and fourth ones, femora and tibiae with pale bands. Palpal organ: Sa large and concave, the tip being curved towards inside; embolus (E) largely encircling.

FEMALE (Paratype): Total length 4.31 mm. Carapace length 1.10 mm; width 1.02 mm. Eye sizes and interdistances (mm): AME 0.11; ALE 0.06; PME 0.09; PLE 0.09; AME-AME 0.10; PME-PME 0.20. MOA length 0.29 mm. First femur 2.50 mm; patella and tibia 2.75 mm; metatarsus 2.31 mm; tarsus 0.93 mm. Second femur 1.22 mm; fourth 1.51 mm. Sternum dusky in dark specimens and dusky marginally in light specimens. Epigynum with an anteromedian lobe which is indistinctly separated into two parts; openings situated behind projections.

MATERIAL EXAMINED: Holotype: ♂, Koniya, Amami-Oshima Is., Kagoshima Pref., 13-VIII-1978, H. YOSHIDA. Paratypes: 14 ♀, same data as holotype; 12 ♀, 1 ♂, Yui, Amami-Oshima Is., 13-VIII-1978, H. YOSHIDA; 1 ♀, Yuwan, Amami-Oshima Is., 1-VIII-1964, T. KIMURA.

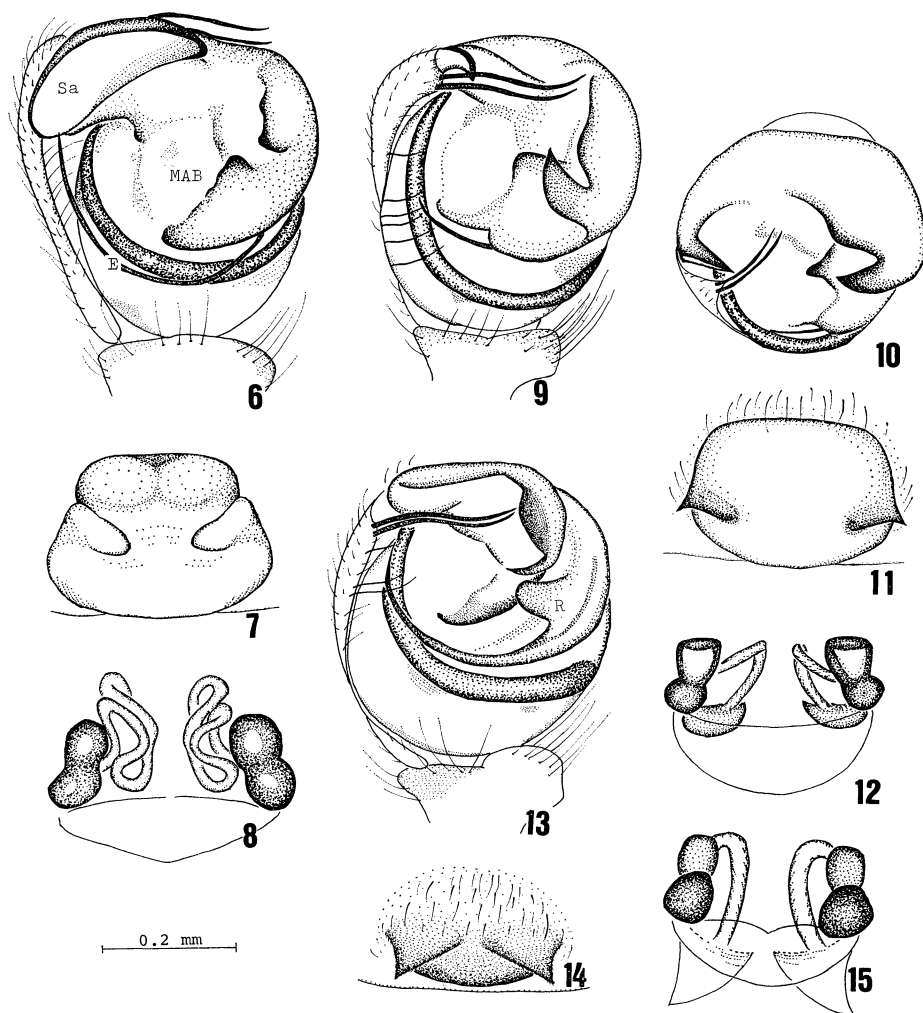
DISTRIBUTION: Amami-Oshima Island.

***Octonoba uncinata* n. sp.**

(Figs. 2, 5, 9-12)

MALE (Holotype): Total length 3.53 mm. Carapace length 1.24 mm; width 1.16 mm. Eye sizes and interdistances (mm): AME 0.09; ALE 0.05; PME 0.08; AME-AME 0.08; PME-PME 0.17. MOA length 0.22 mm. First femur 2.32 mm; patella and tibia 2.24 mm; metatarsus 2.03 mm; tarsus 0.89 mm. Second femur 1.24 mm; fourth 1.22 mm. Sternum dusky marginally. Legs pale with dusky bands. Palpal organs: Sa small; MAB with a hooked projection; embolus short.

FEMALE (Paratype): Total length 4.37 mm. Carapace length 1.34 mm; width 1.18 mm. Eye sizes and interdistances (mm): AME 0.09; ALE 0.05; PME 0.09; PLE 0.08; AME-AME 0.09; PME-PME 0.17. MOA length 0.28 mm. First femur



Figs. 6-8. *Octonoba grandiconcava* n. sp. 6. Male palpus, ventral view. 7. Female epigynum, ventral view. 8. Female genitalia, dorsal view. Figs. 9-12. *O. uncinata* n. sp. 9. Male palpus, ventral view. 10. Male palpus, apical view. 11. Female epigynum, ventral view. 12. Female genitalia, dorsal view. Figs. 13-15. *O. okinawensis* n. sp. 13. Male palpus, ventral view. 14. Female epigynum, ventral view. 15. Female genitalia, dorsal view.

2.37 mm; patella and tibia 2.63 mm; metatarsus 2.24 mm; tarsus 0.87 mm. Second femur 1.27 mm; fourth 1.24 mm. Legs pale with dusky bands. Epigynum with posterolateral projections.

MATERIAL EXAMINED: Holotype: ♂, Ikema, Tokunoshima Is., Kagoshima Pref., 10-VIII-1978, H. YOSHIDA. Paratypes: 19 ♀, 5 ♂, same data as holotype; 11 ♀, 1 ♂, Kametoku, Tokunoshima Is., 11-VIII-1978, H. YOSHIDA; 1 ♂, Mt. Inogawa-dake, Tokunoshima Is., 29-III-1978, H. YOSHIDA; 5 ♀ Hetono, Tokunoshima Is., 12-VIII-1978, H. YOSHIDA. Other specimens: 1 ♀, Kushiken, Okinoerabu Is., Kagoshima Pref., 25-VII-1964, T. KIMURA, 1 ♀, same locality, 29-VII-1964, T. KIMURA; 4 ♀, 2 ♂, Koyone, Okinoerabu Is., 2,3-VIII. 1966, Y. TARUMI.

DISTRIBUTION: Tokunoshima and Okinoerabu Islands.

***Octonoba okinawensis* n. sp.**

(Figs. 5, 13-15)

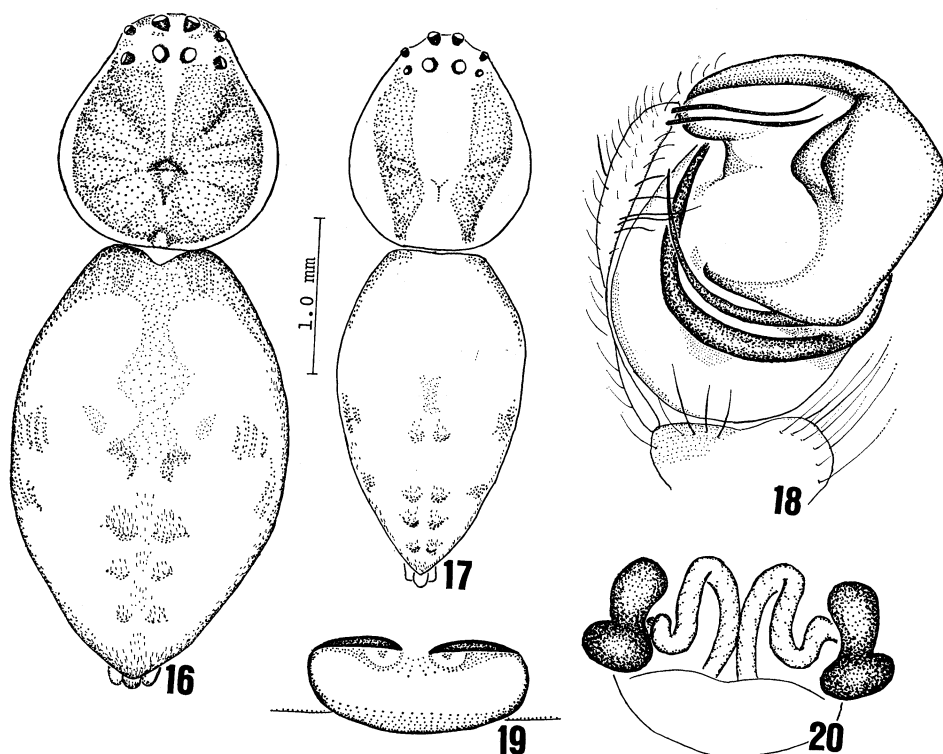
Octonoba species 2: OPELL, 1979, Bull. Mus. comp. Zool. 148: 512, pl. 6-D.

MALE (Holotype): Total length 3.26 mm. Carapace length 1.37 mm; width 1.24 mm. Eye sizes and interdistances (mm): AME 0.05; PME 0.08; AME-AME 0.12; PME-PME 0.21. MOA length 0.20 mm. First femur 2.37 mm; patella and tibia 2.63 mm; metatarsus 2.34 mm; tarsus 0.92 mm. Second femur 1.34 mm; fourth 1.29 mm. Legs brown; third and fourth ones with dark bands. Palpal organ: Sa straight and distinct from MAB, which is reduced; embolus rather thick, with a radix (R) at base.

FEMALE (Paratype): Total length 4.94 mm. Carapace length 1.46 mm; width 1.34 mm. Eye sizes and interdistances (mm): AME 0.12; ALE 0.07; PME 0.10; PLE 0.10; AME-AME 0.07; PME-PME 0.22. MOA length 0.32 mm. First femur 2.81 mm; patella and tibia 3.00 mm; metatarsus 2.69 mm; tarsus 1.00 mm. Second femur 2.13 mm; fourth 2.44 mm. Legs dusky; third and fourth ones with pale bands. Epigynum with a pair of weakly sclerotized, large and triangular projections.

MATERIAL EXAMINED: Holotype: ♂, Awa, Nago, Okinawa Is., Okinawa Pref., 7-VIII-1978, H. YOSHIDA. Paratypes: 18 ♀, 5 ♂, same data as holotype; 5 ♀, 1 ♂, Yona, Kunigami, 6-VIII-1978, H. YOSHIDA; 3 ♀, Hetona, Kunigami, 6-VIII-1978, H. YOSHIDA; 3 ♀, Enobi, Gushikawa, 30-VI-1977, H. YOSHIDA, 4 ♀, 1 ♀, same locality, 8-VII-1978, H. YOSHIDA; 2 ♀, 1 ♂, Shuri, Naha, 27-VI-1977, M. YOSHIMURA; 1 ♀, 2 ♂, Gushigami, Gushigami, 3-XI-1978, T. GOTO.

DISTRIBUTION: Okinawa Island.



Figs. 16-20. *Octonoba yaginumai* n. sp. 16. Female carapace and abdomen, dorsal view. 17. Male carapace and abdomen, dorsal view. 18. Male palpus, ventral view. 19. Female epigynum, ventral view. 20. Female genitalia, dorsal view.

***Octonoba yaginumai* n. sp.**

(Figs. 1, 3, 5, 16-20)

MALE (Holotype): Total length 3.68 mm. Carapace length 1.39 mm; width 1.16 mm. Eye sizes and interdistances (mm): AME 0.11; ALE 0.07; PME 0.11; PEL 0.09; AME-AME 0.08; PME-PME 0.16. MOA length 0.30 mm. First femur 2.44 mm; patella and tibia 2.76 mm; metatarsus 2.42 mm; tarsus 1.00 mm. Second femur 1.49 mm; fourth 1.49 mm. Legs brown; third and fourth femora with median and distal dusky bands; both tibiae and metatarsi with median and distal dusky bands. Palpal organ: Sa straight and attached to MAB, which is flat and broad; Sb small and dark.

FEMALE (Paratype): Total length 3.81 mm. Carapace length 1.41 mm;

width 1.29 mm. Eye sizes and interdistances (mm): AME 0.10; ALE 0.07; PME 0.09; PLE 0.10; AME-AME 0.09; PME-PME 0.23. MOA length 0.29 mm. First femur 2.44 mm; patella and tibia 2.88 mm; metatarsus 2.56 mm; tarsus 1.00 mm. Second femur 1.50 mm; fourth 1.44 mm. Legs dusky, with indistinct pale markings and bands. Epigynum with a pair of projections.

MATERIAL EXAMINED: Holotype: ♂, Chinen, Chinen, Okinawa Is., Okinawa Pref., 4-VIII-1978, H. YOSHIDA. Paratypes: 18 ♀, 3 ♂, same data as holotype, 5 ♀, 1 ♂, same locality, 30-VI-1977, H. YOSHIDA, 3 ♀, same locality, 19-VIII-1978, H. YOSHIDA; 15 ♀, 4 ♂, Hyakuna, Tamagusuku, 9-VIII-1978, H. YOSHIDA, 1 ♀, same locality, 1-X-1978, T. GOTO.

DISTRIBUTION: Okinawa Island.

REMARKS: The specific name is a patronym in honor of Prof. T. YAGINUMA, Osaka.

***Octonoba grandiprojecta* n. sp.**

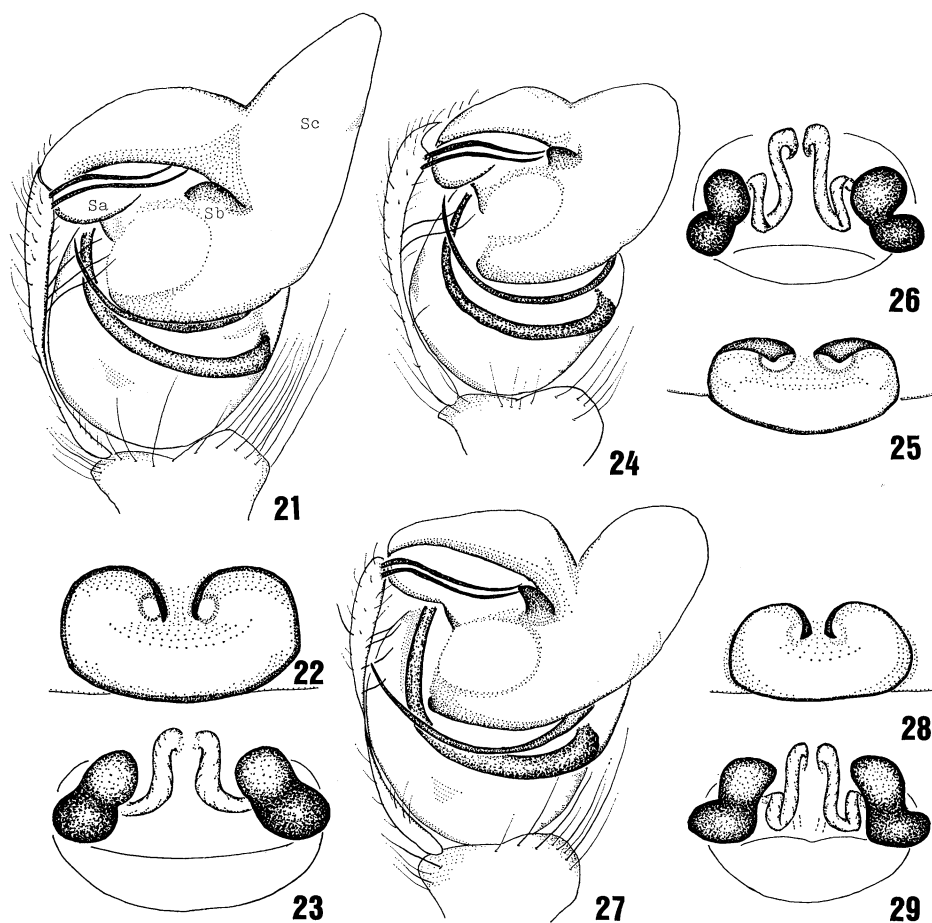
(Figs. 5, 21-23)

MALE (Holotype): Total length 3.81 mm. Carapace length 1.41 mm; width 1.29 mm. Eye sizes and interdistances (mm): AME 0.10; ALE 0.07; PME 0.09; PLE 0.10; AME-AME 0.09; PME-PME 0.23. MOA length 0.29 mm. First femur 2.44 mm; patella and tibia 2.88 mm; metatarsus 2.56 mm; tarsus 1.00 mm. Second femur 1.50 mm; fourth 1.44 mm. Legs brown, with dusky bands indistinct. Palpal organ: Sa straight; Sb present; Sc tapering to apex.

FEMALE (Paratype): Total length 4.31 mm. Carapace length 1.41 mm; width 1.05 mm. Eye sizes and interdistances (mm): AME 0.11; ALE 0.07; PME 0.09; PLE 0.10; AME-AME 0.12; PME-PME 0.24. MOA length 0.37 mm. First femur 2.31 mm; patella and tibia 2.69 mm; metatarsus 2.31 mm; tarsus 0.88 mm. Second femur 1.31 mm; fourth 1.56 mm. Base color dusky. Both first and second legs with longitudinal pale stripes. Epigynum with a pair of projections; openings situated outside projections.

MATERIAL EXAMINED: Holotype: ♂, Kanegusuku, Kumejima Is., Okinawa Pref., 17-III-1979, H. YOSHIDA. Paratypes: 2 ♀, 2 ♂, same data as holotype, 7 ♀, same locality, 16-III-1979, H. YOSHIDA.

DISTRIBUTION: Kumejima Island.



Figs. 21-23. *Octonoba grandiprojecta* n. sp. 21. Male palpus, ventral view. 23. Female genitalia, dorsal view. Figs. 24-26. *O. tanakai* n. sp. 24. Male palpus, ventral view. 25. Female epigynum, ventral view. 26. Female genitalia, dorsal view. Figs. 27-29. *O. yaeyamensis* n. sp. 27. Male palpus, ventral view. 28. Female epigynum, ventral view. 29. Female genitalia, dorsal view.

***Octonoba tanakai* n. sp.**

(Figs. 5, 24-26)

MALE (Holotype): Total length 3.31 mm. Carapace length 1.29 mm; width 1.10 mm. Eye sizes and interdistances (mm): AME 0.10; ALE 0.06; PME 0.07; PLE 0.09; AME-AME 0.10; PME-PME 0.18. MOA length 0.24 mm. First femur

2.31 mm; patella and tibia 2.69 mm; metatarsus 2.44 mm; tarsus 1.06 mm. Second femur 1.56 mm; fourth 1.44. Legs brown, with distinct dusky bands. Palpal organ: Sa straight; Sb present; Sc small and broad.

FEMALE (Paratype): Total length 5.13 mm. Carapace length 1.56 mm; width 1.32 mm. Eye sizes and interdistances (mm): AME 0.12; ALE 0.07; PME 0.10; PLE 0.10; AME-AME 0.10; PME-PME 0.18. MOA length 0.24 mm. First femur 2.31 mm; patella and tibia 2.69 mm; metatarsus 2.44 mm; tarsus 1.06 mm. Second femur 1.56 mm; fourth 1.75 mm.

MATERIAL EXAMINED: Holotype: ♂, Shimozato, Hirara, Miyako Is., Okinawa Pref., 23-III-1979, H. YOSHIDA. Paratypes: 7 ♀, same data as holotype, 7 ♀, 3 ♂, same locality, 22-III-1979, H. YOSHIDA.

DISTRIBUTION: Miyako Island.

REMARKS: The specific name is a patronym in honor of Mr. H. TANAKA, Sakai.

***Octonoba yaeyamensis* n. sp.**

(Figs. 4, 5, 27-29)

MALE (Holotype): Total length 2.58 mm. Carapace length 1.39 mm; width 1.13 mm. Eye sizes and interdistances (mm): AME 0.10; ALE 0.06; PME 0.08; PLE 0.08; AME-AME 0.08; PME-PME 0.16. MOA length 0.24 mm. First femur 2.39 mm; patella and tibia 2.71 mm; metatarsus 2.42 mm; tarsus 0.97 mm. Second femur 1.41 mm; fourth 1.27 mm. Legs brown; in first and fourth ones, tibiae and metatarsi with distal dusky bands; in third and fourth ones, femora, tibiae and metatarsi with median and distal dusky bands. Palpal organ: Sa straight; Sb present; Sc large and round.

FEMALE (Paratype): Total length 3.88 mm. Carapace length 1.32 mm; width 1.12 mm. Eye sizes and interdistances (mm): AME 0.10; ALE 0.07; PME 0.10; PLE 0.09; AME-AME 0.10; PME-PME 0.22. MOA length 0.32 mm. First femur 2.56 mm; patella and tibia 3.13 mm; metatarsus 2.69 mm; tarsus 1.00 mm. Second femur 1.38 mm; fourth 1.63 mm. Epigynum with a pair of projections; openings situated outside projections.

MATERIAL EXAMINED: Holotype: ♂, Amitori, Iriomote Is., Okinawa Pref., 17-III-1977, H. YOSHIDA. Paratypes: 2 ♀, 1 ♂, same data as holotype; 1 ♀, Sonai, Iriomote Is., 28-VI-1977, M. YOSHIMURA; 2 ♀, Ohara, Iriomote Is., 1-VII-1977, M. YOSHIMURA. Other specimens: 2 ♀, Mt. Omoto-dake, Ishigaki Is., Okinawa

Pref., 12-VII-1976, H. YOSHIDA, 12 ♀, 2 ♂, same locality, 2-VIII-1978, H. YOSHIDA ; 3 ♀, Mt. Banna-dake, Ishigaki Is., 1-VIII-1978, H. YOSHIDA ; 1 ♀, Kabira, Ishigaki Is., 10-VII-1976, H. YOSHIDA, 1 ♀, same locality, 3-VIII-1978, H. YOSHIDA.

DISTRIBUTION : Ishigaki and Iriomote Islands.

摘 要

吉田 哉 (大阪府立大学農学部農業昆虫学教室*) : 琉球列島産トウキョウウズグモ属の7新種。

Octonoba トウキョウウズグモ属には、日本から5種が知られている。しかし、琉球列島にはこれらの5種は分布しない。ここでは、琉球列島に分布する別の種を新種と認め記載することにした。これらの種は形態的・生態的に互いによく似ているが、島ごとに隔離されている。以下にこれらの種・分布域を記す。

1. *O. grandiconcava* n. sp. アマミウズグモ 奄美大島
2. *O. uncinata* n. sp. シマウズグモ 徳之島・沖永良部島
3. *O. okinawensis* n. sp. オキナワウズグモ 沖縄島
4. *O. yaginumai* n. sp. ハマウズグモ 沖縄島
5. *O. grandiprojecta* n. sp. クメジマウズグモ 久米島
6. *O. tanakai* n. sp. ミヤコウズグモ 宮古島
7. *O. yaeyamensis* n. sp. ヤエヤマウズグモ 石垣島・西表島

References

- LEHTINEN, P.K., 1967. Classification of the cribellate spiders and some allied families, with notes on the evolution of the suborder Araneomorpha. *Ann. zool. Fenn.*, 4: 199-468.
- OPELL, B.D., 1979. Revision of the genera and tropical American species of the family Uloboridae. *Bull. Mus. comp. Zool.*, 148: 443-549.
- YAGINUMA, T., 1960. Spiders of Japan in Colour. i-viii+1-186+app. 1-8, pls. 1-56. Hoikusha, Osaka.
- YOSHIDA, H., 1980. Six Japanese species of the genera *Octonoba* and *Philoponella* (Araneae: Uloboridae). *Acta arachnol.*, 29: 57-64.

* 現住所 999-61 山形県最上郡最上町向町760 東中学校